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FORENSIC MEDICAL QUALIFICATION OF THE SEVERITY OF FRACTURES OF THE BONES OF THE WRIST AND BONES OF THE HANDS

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Abstarct
Determining the severity and establishing the mechanism of fractures of the bones of the hand are the main issues in the examination of living persons. Currently, in the process of forensic medical examination, the severity of fractures of these bones is established according to the criteria for the duration of health disorders and the volume (%) of permanent loss of general ability to work. However, the duration of health disorders, depending on the nature, localization of fractures, as well as damage to other structures of the hands, varies significantly. In addition, the complications of fractures and long-term outcomes of injury to the bones of the hand can also be very diverse. And, the nature of fractures can be different depending on the mechanism of injury.
Purpose of the study – identification of criteria for forensic evaluation of severity and clarification of the mechanism of formation of various types of fractures of the bones of the wrist and metacarpal bones of the hands.

Materials and methods of research. The studies were carried out in the following 2 groups of observations: 1. The long-term consequences of fractures of the wrist bones in 24 males aged 15 to 48 years were studied. 2. Separate outcomes of metacarpal fractures were studied in 218 persons aged 18-74 years who were injured under various circumstances. In the process of analysis and systematization of bone fractures, we relied on the clinical and anatomical classifications of these structures.

Research results. It was found that fractures of the scaphoid bone (79.1%) were most often observed from the wrist structures, fractures of other bones were noted in 20.9% of cases. In 19 affected persons, there was an isolated hand injury with fractures of the bones of the wrist, in the remaining 5 cases, the injury of the hands was combined with injuries of other parts of the body: with fractures of the bones of the forearm (2), craniocerebral injury (2) and fractures of the bones of the shoulder, thighs and lower legs (1).

In the navicular bone, fractures of Type A 2 were most often observed - an incomplete fracture of the waist, relatively less often - types B 2 - a completed fracture of the waist and types B 4 - transnavicular - perilunar fracture-dislocation of the wrist. On the part of other bones, fractures of the bodies of the lunate and hamate, an intra-articular uncomplicated fracture of the pisiform and a marginal fracture of the trihedral bones were noted.

18 patients with injuries of the bones of the wrist, who applied for medical help in a timely manner, underwent conservative treatment with the imposition of a plaster splint for a period of 8 to 12 weeks. The outcomes of injuries in these patients were favorable, within 2-5 months the functions of the hands and wrist joints were restored, therefore, there was no persistent loss of general ability to work. In relation to 6 patients with isolated fractures of the bones of the wrist, who sought medical help several weeks and months after the injury, surgical treatment was performed, as a result, 2 of them noted restoration of hand function, and 4 had complications in the form of a false joint (3) and aseptic necrosis (1).

The terms of immobilization of the hand in case of fractures of other bones of the wrist were in the range of 8-12 weeks. Based on the nature and outcomes of fractures of the bones of the wrist, isolated uncomplicated injuries of these structures (15), taking into account the duration of the health disorder for a period of more than 3 weeks - less than 4 months, the severity of the injury was classified as medium. In 4 patients with isolated fractures of the navicular bone, complicated by false joints and aseptic necrosis, which resulted in severe dysfunction of the wrist joint, up to a functionally disadvantageous position, while the volume of permanent loss of total disability was more than one third (on the left - 35%, right-40%) who are qualified and discharged grievous bodily harm.

From the side of the structures of the metacarpal bones, in most cases, the victims had periarticular fractures in the neck of the metacarpal bones (49.1%), then intraarticular fractures at the base (26.6%) and periarticular diaphyseal fractures (20.6%) of the bones. Fractures in the region of the head and combined fractures were detected significantly rarely (2.3 and 1.4%).

For oblique fractures of the metacarpal bones, the immobilization time for these fractures ranged from 5-6 to 6-8 weeks. With transverse fractures, there is often a hit of the affected soft tissues in the fracture zone. In addition, due to the small area of fractures, the healing process in them slows down, and therefore the time for immobilization of the hands averaged from 6-8 to 8-10 weeks. With this type of fracture, contractures of the fingers were noted, under these conditions, the volume of permanent loss of general ability to work ranged from 10-15 to 20-25%.

Displaced comminuted fractures were noted in all metacarpals, but most often they were noted on the 5th and 2nd bones. At the same time, in 8 out of 22 patients, after 2 months of immobilization, pronounced contractures of the II and V fingers were observed in the outcome, which led to a permanent loss of general ability to work by 20-25%. At the same time, in case of comminuted fractures without displacements, the period of immobilization of the hands was on average 4-6 weeks, and in patients there was no loss of permanent loss of general ability to work.

Subcapital fractures in the late period of injury led to contracture of the fifth finger in 23 cases out of 103 observations (flexion angle was 5%). The terms of immobilization for these fractures ranged from 5-6 to 6-8 weeks. During the rehabilitation period, contractures of the fingers in 19 patients were eliminated, and in 4 patients, after 2 months of rehabilitation, these conditions deteriorated within 1.5 months, which led to a permanent loss of general ability to work by 5-10%.

CONCLUSIONS

1. Complications of fractures of the navicular bone, leading to a permanent loss of total disability in the amount of more than 1/3, is manifested by a sharp limitation of movements in the wrist joint, up to its forced state. With uncomplicated fractures of the navicular bone and fractures of other bones of the wrist, the duration of the health disorder is 8-12 weeks (up to 3 months), and at the same time, there is no persistent loss of general ability to work in patients;
2. Complications in the form of contractures of the fingers, leading to a permanent loss of general ability to work in the amount of 10 to 25%, are observed mainly with subcapital, comminuted and transverse fractures of the metacarpal bones. In such cases, the duration of health disorder is 3-3.5 months, and with uncomplicated fractures - 4-6 weeks;
3. It was revealed that the formation of fractures in the bones of the wrist is most often caused by an indirect, less often - by a direct mechanism of injury, in the metacarpal bones - a direct mechanism and compression deformity predominate.

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